AMENDMENTS TO THE CLAIMS

Kindly amend the claims as follows:

1 – 2.   (cancelled)

3.   (currently amended) A method for correlating behavior between two elements of a system to determine the presence of mutual interaction between the elements, the method comprising:

measuring the behavior of two elements of a system over time with respect to mutual interaction, thereby producing two behavior functions;

expressing a plurality of constraints on a theoretical distance c between said behavior functions; and

determining that said elements are behaving as mutually interacting elements where there exists an actual distance c that satisfies said constraints, A method according to claim 1 wherein said expressing step comprises expressing each of said constraints using at least two time-consecutive samples (a_n, a_{n+1}) of one of said functions and at least one sample (b_n) of the other of said functions that is time-intermediate said time-consecutive samples.

4.   (original) A method according to claim 3 wherein said expressing step comprises expressing each of said constraints as $(a_n - b_n) \leq c \leq (a_{n+1} - b_n)$.

5.   (currently amended) A method for correlating behavior between two elements of a system to determine the presence of mutual interaction between the elements, the method comprising:

measuring the behavior of two elements of a system over time with respect to mutual interaction, thereby producing two behavior functions;

expressing a plurality of constraints on a theoretical distance c between said behavior functions; and

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determining that said elements are behaving as mutually interacting elements where there exists an actual distance c that satisfies said constraints, A method according to claim 1 wherein said expressing step comprises expressing each of said distances using at least two time-consecutive samples (a_n, a_{n+1}) of one of said functions and at least one sample (b_n) of the other of said functions that is taken at the same time as one of said time-consecutive samples.

6. (original) A method according to claim 5 wherein said expressing step comprises expressing each of said constraints as $(a_n - b_n) \leq c \leq (a_{n+1} - b_n)$.

7 – 8. (cancelled)

9. (currently amended) A method for correlating behavior between two elements of a system to determine the presence of mutual interaction between the elements, the method comprising:

measuring the behavior of two elements of a system over time with respect to mutual interaction, thereby producing two behavior functions;

expressing a plurality of constraints for a plurality of theoretical distances c_i between said behavior functions; and

determining that said elements are behaving as mutually interacting elements where there exists a plurality of actual distances c_i that satisfies said constraints, A method according to claim 7 wherein said expressing step comprises:

expressing each of said constraints using a plurality of samples a_n of one of said functions taken at times $a'_1, a'_2 ..., a'_n$, a first plurality of time-consecutive samples b_n and a second plurality of time-consecutive samples b'_n of the other of said functions taken at times $b'_1, b'_2 ..., b'_n$, wherein $a'_1 \leq b'_1 \leq a'_2 \leq b'_2 \leq ... a'_n \leq b'_n$.; and

selecting each of said constraints from of a set of constraints defined by the pattern:

$$a_1 - b_1 \leq c_1 \leq a_2 - b_1$$
$$a_2 - b_2 \leq c_2 \leq min(a_2 - b_1 + P(b'_2 - b'_1), a_3 - b_2)$$

$$a_3 - b_3 \leq c_3 \leq min(a_2 - b_1 + P(b'_3 - b'_1), a_3 - b_2 + P(b'_3 - b'_2), a_4 - b_3).$$

10 - 11.   (cancelled)

12.   (currently amended) <u>Apparatus for correlating behavior between two elements of a system to determine the presence of mutual interaction between the elements, the apparatus comprising:</u>

<u>   means for measuring the behavior of two elements of a system over time with respect to mutual interaction, thereby producing two behavior functions;</u>

<u>   means for expressing a plurality of constraints on a theoretical distance <i>c</i> between said behavior functions; and</u>

<u>   means for determining that said elements are behaving as mutually interacting elements where there exists an actual distance <i>c</i> that satisfies said constraints,</u> ~~Apparatus according to claim 10~~ wherein said expressing means comprises means for expressing each of said constraints using at least two time-consecutive samples (a_n, a_{n+1}) of one of said functions and at least one sample (b_n) of the other of said functions that is time-intermediate said time-consecutive samples.

13.   (original) Apparatus according to claim 12 wherein said expressing means comprises means for expressing each of said constraints as $(a_n - b_n) \leq c \leq (a_{n+1} - b_n)$.

14.   (currently amended) <u>Apparatus for correlating behavior between two elements of a system to determine the presence of mutual interaction between the elements, the apparatus comprising:</u>

<u>   means for measuring the behavior of two elements of a system over time with respect to mutual interaction, thereby producing two behavior functions;</u>

<u>   means for expressing a plurality of constraints on a theoretical distance <i>c</i> between said behavior functions; and</u>

<u>   means for determining that said elements are behaving as mutually interacting elements where there exists an actual distance <i>c</i> that satisfies said constraints,</u> ~~Apparatus~~

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~~according to claim 10~~ wherein said expressing means comprises means for expressing each of said distances using at least two time-consecutive samples (a_n, a_{n+1}) of one of said functions and at least one sample (b_n) of the other of said functions that is taken at the same time as one of said time-consecutive samples.

15.   (original) Apparatus according to claim 14 wherein said expressing means comprises means for expressing each of said constraints as $(a_n - b_n) \le c \le (a_{n+1} - b_n)$.

16 – 17.   (cancelled)

18.   (currently amended) <u>Apparatus for correlating behavior between two elements of a system to determine the presence of mutual interaction between the elements, the apparatus comprising:</u>

<u>means for measuring the behavior of two elements of a system over time with respect to mutual interaction, thereby producing two behavior functions;</u>

<u>means for expressing a plurality of constraints for a plurality of theoretical distances ci between said behavior functions; and</u>

<u>means for determining that said elements are behaving as mutually interacting elements where there exists a plurality of actual distances c_i that satisfies said constraints.</u> ~~Apparatus according to claim 16~~ wherein said expressing means comprises:

means for expressing each of said constraints using a plurality of samples a_n of one of said functions taken at times $a'_1, a'_2 ..., a'_n,$ a first plurality of time-consecutive samples b_n and a second plurality of time-consecutive samples b'_n of the other of said functions taken at times $b'_1, b'_2 ..., b'_n,$ wherein $a'_1 \le b'_1 \le a'_2 \le b'_2 \le ... a'_n \le b'_n.$; and

means for selecting each of said constraints from of a set of constraints defined by the pattern:

$$a_1 - b_1 \le c_1 \le a_2 - b_1$$
$$a_2 - b_2 \le c_2 \le min(a_2 - b_1 + P(b'_2 - b'_1), a_3 - b_2)$$
$$a_3 - b_3 \le c_3 \le min(a_2 - b_1 + P(b'_3 - b'_1), a_3 - b_2 + P(b'_3 - b'_2), a_4 - b_3).$$

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